

Yamaguchi et al. 09/660,888 (A0-104 US)
al., as applied to claim 17, and further in view of Wu et al.. The Examiner also provisionally rejected claims 1-21 under the doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of co-pending application 09/660,907 in view of Futatsugi et al..

Claim 17 and claim 19, which depends from claim 17, have been amended for consistency of terminology. Claim 21 has been amended to recite that the outer metal shell extends “partially over the retainer shield to retain the retainer shield in its place upon the housing.”

The Applicants respectfully submit that claim 1 of record and claim 17 as amended herein are unobvious in view of the combination of references suggested by the Examiner because, even if the cited references were to be combined, the resulting combination would not include all of the features recited in the claims. No combination of Wu et al., Futatsugi et al. and Wang would include a metal shield “...disposed between the metal shell and the connector housing, the metal shield being retained in its place upon the housing by the metal shell”, as recited in claim 1. In addition, no combination of Futatsugi et al., Matsunuma et al. and Wang would include “...an outer shell member extending partially over the retainer shield, the retainer shield being retained in its place upon the housing by the outer shell member”, as recited in amended claim 17.

The Examiner suggests that Futatsugi et al. “teaches a retainer (40) in the form of a metal shield disposed partially over and retaining the retainer shield (see (Fig. 8)...”. However, in Futatsugi et al. forward shield member 40 is secured to the connector housing independently of rear shield member 70, and rear shield member 70 is secured to the connector housing independently of forward shield member 40. Neither shield member is used or needed to retain the other shield member in its place upon the housing, as disclosed in the present application.

With regard to forward shield member 40, column 3, lines 16-21 of Futatsugi et al. states:

Each of the side walls 42 has an engaging hole 43 that engages with an engaging projection 22 formed on the insulating housing 20, a tongue part 44 that is positioned to the rear of the engaging hole 43, and first and second SMT type solder tabs 45a and 45b that are formed to protrude outward to the side.

Also, column 4, lines 29-43 state:

In the fourth assembly step, forward shield member 40 is mounted from the mating face of the insulating housing 20 (see arrow C in FIGS. 7 to 9). First, the engaging holes 43

formed in the side walls 42 of forward shield member 40, are engaged with the engaging projections 22 on both side surfaces of the insulating housing 20, and extend in the direction of length. Secondly, the tongue parts 44 positioned to the rear of the engaging holes 43 are bent in the direction indicated by arrow R, and are thus caused to undergo plastic deformation so that these tongue parts 44 are oriented as shown in FIG. 1, adjacent to angled rearwardly facing housing surfaces (FIG. 8). As a result, the forward shield member 40 is securely fastened in place with respect to the insulating housing 20.

Similarly, with regard to rear shield member 70, column 3, lines 35-48 state:

As is shown in FIG. 1, top wall 72 has engaging holes 76 that interlock with engaging projections 23 formed on the insulating housing 20, and a locking part 77 that is formed by being bent in a U-shape at the front end as shown in FIG. 6. Front-end projections 81 positioned on both sides of the locking part 77 engage with support walls 26,26 of the insulating housing 20, and are supported thereby to prevent upward movement. Referring to FIGS. 3 and 8, bottom wall 73 includes a pawl 78 that interlocks with an engaging hole 25 formed between posts 24 of the insulating housing 20, a bridge 79 supported at both ends positioned in the approximate center of the bottom surface 73, and a pair of lances 80 that interlock with the insulating housing 20.

In addition, Column 3, lines 59-67, continuing through column 4, lines 1-6, state:

Next, rear shield member 70 is mounted from the rear face of the insulating housing 20 (see arrow B). The locking part 77 is moved through recess 19 in the insulating housing 20 to a specified forward position as shown in FIG. 6. The front-end projections 81 of the top wall 72 become supported by the support walls 26 of the insulating housing 20, and the engaging holes 76 interlock with the engaging projections 23 of the insulating housing 20. Pawl 78 enters hole 25 of housing 20, and lances 80 interlock with recesses 27. As is seen in FIG. 9, a central groove 28 that is aligned with the engaging hole 25 is formed in the bottom surface of the insulating housing 20, and bridge 79 engages therewith; as a result, bridge 79 guides the mounting of the shield member 70, and correctly positions the shield member 70 with respect to insulating housing 20.

From the above portions of the Futatsugi et al. disclosure, it is clearly seen that each shield member is secured to the connector housing independently of the other shield member. Thus, neither forward shield member 40 nor rear shield member 70 is "retained in its place upon the housing" by the other shield member, as described in claims 1 and 17 of the present application. As neither Wu et al., Futatsugi et al. or Wang disclose a "shield being retained in its place upon the housing by the metal shell", no combination of these references would include this feature.

The Examiner also suggests that “retainer (40) retains wall sections (82) from being pulled away of their original position.” However, the Examiner cites no specific portion of Futatsugi et al. which shows nor suggests such a purpose for forward shield member 40. As stated in column 4, lines 44-48:

As is seen from FIG. 10, when the forward shield member 40 is mounted, the projections 84,84 of the rear shield member 70 become engaged with forward shield member 40; realizing a *grounding connection* between the shield members 40 and 70.

Thus, forward shield member 40 makes contact with rear shield member 70 at projections 84, 84 of rear shield member 70 for grounding purposes, and not for the purpose of retaining rear shield member 70 in its place upon the housing. As stated above, rear shield member 70 is secured to the connector housing independent of forward shield member 40. Thus, forward shield member 40 is neither needed nor used to help retain rear shield member 70 in its place upon the housing.

In addition, the Applicants respectfully submit that amended claim 21 is unobvious in view of any combination of Wu et al., Futatsugi et al., Wang and Matsunuma because, even if these references were to be combined, the resulting combination would not include all of the features recited in the claim. None of the cited references either show or suggest an “... outer metal shell extending partially over the retainer shield to retain the retainer shield in its place upon the housing”, as recited in amended claim 21. Thus, no combination of the cited references would provide an “... outer metal shell extending partially over the retainer shield to retain the retainer shield in its place upon the housing”, as recited in the amended claim.

The Applicants respectfully submit that claim 21 is unobvious in view of the cited references because of the large number of references deemed necessary by the Examiner to support his claim rejection. The Examiner cited four different references (Matsunuma, Wu et al., Futatsugi et al. and Wang) in rejecting claim 21 under 35 U.S.C. §103(a). The fact that such a large number of references must be combined in a attempt to satisfy all the elements of the claim is, in itself, evidence of unobviousness. To combine all of these references in the manner set forth by the Examiner would require one of ordinary skill in the art to pick selected features from each cited reference and apply them to the primary obviousness reference, necessitating a complete reworking of the primary reference. For example, assuming the primary obviousness reference to be Wu et al., combining Futatsugi et al. with Wu et al. would necessitate the


addition of an extra metal shell member to the connector housing of Wu et al. for encasing the housing in conjunction with existing conductive shield 3. This would add an extra component to the connector of Wu et al. and may require a re-design of the existing metal shell, the housing, or both. Also, modifying Wu et al. to remove the sidewalls of the connector housing as shown in Wang would render the shield positioning mechanism of Wu et al. inoperative because this mechanism relies on abutment between resilient tabs 331, '331 and the rear portions 102 of housing sides 16 and 18 (see column 2, lines 40-46 of Wu et al.) to prevent rearward movement of the housing with respect to conductive shield 3. In addition, modifying Wu et al. to provide a retention member along the top wall of the metal shell as shown in Matsunuma et al. or Futatsugi et al. would require repositioning of standoffs 154 shown in Wu et al. Thus, in view of the large number of references applied to support the rejection of claim 21 under 35 U.S.C. §103(a) and in view of the extensive modifications necessary to apply the features cited by the Examiner to the primary obviousness reference, the Applicants respectfully submit that claim 21 is unobvious in view of the combination of references cited by the Examiner.

For the reasons stated above, the Applicants respectfully submit that claim 1 is unobvious in view of any combination of Wu et al., Futatsugi et al. and Wang. As claim 1 is believed to be patentable over the cited references, it is submitted that claims 2-16 are also patentable as they depend from amended claim 1. Also, for the reasons stated above, the Applicants respectfully submit that amended claim 17 is unobvious in view of any combination of Futatsugi et al., Matsunuma et al. and Wang. As amended claim 17 is believed to be patentable over the cited references, it is submitted that claims 18, 20 and amended claim 19 are also patentable as they depend from amended claim 17.

With respect to the provisional obviousness-type double patenting rejection, the Applicants respectfully submit that, as the rejection is provisional, Applicants will submit a terminal disclaimer to obviate the rejection upon the indication of allowable subject matter in one or the other of the two applications.

In view of the above amendments and remarks, the Applicants respectfully submit that all rejections of record have been overcome. The Applicants respectfully request favorable reconsideration and allowance of the present application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'D.K. Scheer', written over a horizontal line.

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Dated: JANUARY 22, 2002

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Yamaguchi et al. 09/660,888 (A0-104 US)
FEB 15 2002
1C 2800
ATTACHMENT TO AMENDMENT OF SERIAL NO. 09/660,888
CONTAINING MARKED-UP CHANGES TO CLAIMS

A. Version With Markings To Show Changes Made (Claims)

17. (Twice Amended) A receptacle connector for providing electrical connection between an opposing plug connector with a circuit board, the opposing connector having an insertion end for mating with the receptacle of said connector, comprising:

an insulative housing, the connector housing supporting a plurality of conductive terminals, the connector housing having distinct top and bottom wall portions defining an interior receptacle in which said terminals are supported, the receptacle being sized to receive said plug connector insertion end when said plug connector is mated to said receptacle connector, the housing not having any sidewalls interconnecting the top and bottom wall portions together;

a retainer shield for shielding a portion of said connector housing and for engaging a plurality of exterior surfaces of said plug connector insertion end, the retainer shield including a body portion that is bent to overlies at least three distinct sides of said connector housing, said retainer shield further including at least two retention members formed therewith and projecting into said connector housing interior receptacle, said two retention members being oriented in distinct vertical and horizontal planes so as to exert a retaining force from two different directions on two different surfaces of said plug connector insertion end when inserted into said receptacle, and

[a metal shell] an outer shell member extending partially over the retainer shield, the retainer shield being retained in its place upon the housing by the [metal shell] outer shell member.

19. (Amended) The connector of claim 17, [further including an] wherein the outer shell member is disposed on the exterior of said connector housing, said outer shell member overlying at least four different surfaces of said connector housing and having a front panel portion with an opening formed therein that communicates with said connector housing interior receptacle.

21. (Twice Amended) A connector for providing a connection between an opposing connector and a circuit board, the opposing connector having an elongated insertion end for mating with the connector, said connector comprising:

an insulative housing supporting a plurality of conductive terminals, the connector housing having a body portion with distinct top and bottom wall portions extending therefrom, the connector housing top and bottom portions defining a receptacle therebetween adapted to receive said opposing connector insertion portion therein, said connector housing not having any sidewalls interconnecting said top and bottom wall portions and defining part of said receptacle;

a retainer shield that overlies a portion of said connector housing, the retainer shield being formed from metal blank and having three distinct retention members formed therewith, each of the retention members extending at least partially into said receptacle for engaging an opposing portion of said opposing connector inserted into said receptacle, each of said retention members further extending into said receptacle from three different directions; and,

an outer metal shell having a plurality of different panel portions disposed on some portions of said connector housing in overlying relationship, the shell member having a front face panel that extends vertically between said connector housing top and bottom wall portions, two side panels that extend vertically between said connector top and bottom wall portions, [said connector receptacle,] the front face panel having an opening formed therein that communicates with said receptacle, two of said retention members being disposed interiorly of said outer shell side panels and the third of said retention members being disposed interiorly of said outer shell and said connector housing top wall portion, the outer metal shell extending partially over the retainer shield to retain the retainer shield in its place upon the housing.